

Application No.: 10/539,766Docket No.: 4590-413**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended): A gyroscope comprising at least one mass capable of vibrating along an x axis at a resonant excitation frequency  $F_x$  and capable of vibrating along [[a y]] axis perpendicular to the x axis, at a resonant detection frequency  $F_y$ , under the effect of the Coriolis force generated by a rotation about a z axis perpendicular to the x and y axes, comprising connected to the mass, a signal generator for generating a signal that disturbs the vibration of the mass along the y -axis, and a feedback control loop for controlling the resonant frequency  $F_y$  so that  $F_y$  is equal or practically equal to  $F_x$  throughout the duration of use of the gyroscope, the feedback control loop comprising:

means for modifying the resonant detection frequency  $F_y$ ;

means for detecting the variation induced by the disturbing signal on the vibration of the mass along the y -axis, an error signal e representative of the difference between  $F_x$  and  $F_y$  being deduced from [[this]] the variation induced by the disturbing signal; and

control means for controlling the  $F_y$ -modifying means, the control being established on the basis of the error signal e.

2. (previously presented): The gyroscope as claimed in claim 1, wherein the disturbing-signal generator is connected to the mass via the  $F_y$ -modifying means.

3. (previously presented): The gyroscope as claimed in claim 1, wherein the disturbing-signal generator is connected to the  $F_y$ -modifying means via the feedback control loop.

4. (previously presented): The gyroscope as claimed in claim 2 wherein the disturbing-signal generator is an oscillator of predetermined reference frequency  $F_0$ .

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5. (previously presented): The gyroscope as claimed in claim 2, wherein, since the gyroscope has a predetermined bandwidth, the disturbing signal is a periodic signal of frequency  $F_0$ , where  $F_0$  is above the bandwidth of the gyroscope but below  $F_x$ .

6. (currently amended): The gyroscope as claimed in claim 1, comprising: excitation means for exciting the mass along the y-axis, with the aim of counterbalancing the vibration along the y-axis generated by the Coriolis force, wherein the disturbing-signal generator is connected to the mass via [[these]] the excitation means.

7. (currently amended): The gyroscope as claimed in claim [[1]] 6, comprising: [[a]] the y-axis excitation loop and wherein the disturbing-signal generator is connected to the excitation means via the y-axis excitation loop.

8. (previously presented): The gyroscope as claimed in claim 6, wherein the disturbing-signal generator is a voltage-controlled oscillator.

9. (currently amended): The gyroscope as claimed in claim 6, wherein, since the gyroscope has a predetermined bandwidth, the disturbing signal is a periodic signal,  $\Delta F$  being equal to about 10% of  $F_x$ , the frequency of which varies between  $F_x - \Delta F$  and  $F_x + \Delta F$  according to a frequency  $F_0$ , where  $F_0$  is above the bandwidth of the gyroscope but below  $F_x$ ,  $\Delta F$  being equal to about 10% of  $F_x$ .

10. (previously presented): The gyroscope as claimed in claim 6, wherein the excitation means comprise electrodes.

11. (currently amended): The gyroscope as claimed in claim [[1]] 4, wherein the feedback control loop further comprises:

connected in series, means for shaping the signal output by the detection means, an amplitude detection device, an  $F_0$ -centered band-pass filter, a synchronous demodulator for synchronizing with the reference frequency  $F_0$ , and an integrator/corrector that is connected to the means for modifying the frequency  $F_y$ .

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12. (previously presented): The gyroscope as claimed in claim 1, wherein, since the mass is connected to a rigid frame by means of springs along x and y, of respective stiffness  $K_x$  and  $K_y$ , the means for modifying the resonant frequency  $F_y$  comprise electrodes for controlling the stiffness  $K_y$ .

13. (currently amended): The gyroscope as claimed in claim 1, wherein the means for detecting the variation induced in the vibration of the mass along the y-axes comprise electrodes.

14. (previously presented): The gyroscope as claimed in claim 1, wherein, when the disturbing signal is a periodic signal of predetermined frequency  $F_0$ , the disturbing signal is a sinusoidal or triangular signal.

15. (previously presented): The gyroscope as claimed in claim 1, wherein the gyroscope is a micromachined gyroscope having a plane structure and in that the x and y axes lie in the plane of the plane structure.

16. (previously presented): The gyroscope as claimed in claim 1, wherein the gyroscope is a micromachined gyroscope having a plane structure and in that the x axis lies in the plane of the plane structure and the y axis does not lie in the plane of the plane structure.

17. (previously presented): The gyroscope as claimed in claim 1, wherein the gyroscope has a three-dimensional structure.